DOCUMENT RESUME

ED 378 516 CG 025 919

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TITLE The Effect of a Health Belief Intervention on Safer Sex Practices.
PUB DATE Aug 94
NOTE 10p.; Paper presented at the Annual Meeting of the American Psychological Association (102nd, Los Angeles, CA, August 12-16, 1994). Title page and section headings may not reproduce clearly due to stylized type.
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Acquired Immune Deficiency Syndrome; Affective Behavior; College Students; Disease Control; Educational Therapy; *Females; *Health Education; Health Needs; *Health Promotion; Higher Education; *Intervention; Self Care Skills; *Self Efficacy
IDENTIFIERS Bandura (Albert); Condoms; Health Belief Model; *Safe Sex Practices

ABSTRACT

Increases in HIV infection among young heterosexual women has prompted a call for the development of new safe sex interventions for this population. This study tested the effectiveness of an intervention conceptualized on the basis of the Health Belief Model and combined with Bandura's self-efficacy theory. Subjects (N=82) were sexually active (more than one partner), female college students. Experimental subjects were exposed to four 1.5 hour group sessions incorporating vicarious learning, mastery learning, and modification of beliefs about vulnerability to HIV infection, partner risk assessment strategies, and the costs and benefits of condom use. Group two received four 1.5 hour group interventions, which incorporated traditional AIDS education strategies. Group three received no treatment. Subjects were tested prior to treatment, during the last session of the group treatment, and 60 days following the end of the group. The dependent variables examined included attitudes toward condoms, condom use, beliefs about vulnerability, efficacy for condom use, and efficacy for discussing sexual histories with potential partners. Experimental subjects demonstrated a greater awareness of the benefits of condom use and intention to use condoms when compared to group three. Other factors found to influence safer sex practices included self-defined monogamy status. (RJM)

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ED 378 516

THE EFFECT OF A HEALTH BELIEF INTERVENTION ON SAFER SEX PRACTICES

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ABSTRACT

This study tested the effectiveness of an intervention conceptualized on the basis of the Health Belief Model (Rosenstock, Strecher, & Becker, 1988) combined with Bandura's (1989) self-efficacy theory to promote safer sex practices compared with a traditional AIDS Education group.

Subjects (Ss) (N=82) were sexually active multiple partnered female college students. They were randomly assigned to three groups. Experimental Ss were exposed to four 1.5 hour group sessions incorporating vicarious learning, mastery learning, and modification of beliefs about vulnerability to HIV infection, partner risk assessment strategies, and the costs and benefits of condom use. Alternate Treatment Ss were exposed to four 1.5 hour group interventions incorporating traditional AIDS education strategies. Waiting List control Ss received no treatment.

Subjects were tested prior to treatment, during the last session of the group treatment and 60 days following the end of the group. Dependent variables examined included; attitudes toward condoms, frequency of condom use, beliefs about vulnerability, efficacy for condom use, and efficacy for discussing sexual histories with potential partners.

Experimental subjects demonstrated significantly greater beliefs about the benefits of condom use, and intent to use condoms compared to Control Ss. Other factors found to impact safer sex practices included self-defined monogamy status.

INTRODUCTION

The recent increase in HIV infection among young heterosexual women has prompted researchers to call for the development of new and innovative interventions to increase safer sex practices in this population. The fact that "traditional" HIV education has not been successful is well documented in the literature, as well as by the statistics showing HIV transmission through heterosexual contact increasing at a rapid rate.

An intervention model that has shown promise in other areas of disease prevention and promotion of wellness behaviors is the Health Belief Model (Rosenstock, Strecher, & Becker, 1988) combined with Bandura's (1989) self-efficacy theory. This model proposes that a specific cluster of beliefs must be in place before an individual will take action to prevent an illness. The cluster includes personal beliefs: 1) in susceptibility to the disease, 2) in a negative impact from the disease, 3) that taking action could prevent the disease or reduce its severity, 4) that performing specific behaviors will prevent the illness, and 5) that the individual is capable of performing the behavior required. The current research was designed to test the efficacy of a new HIV Education approach based on the Health Belief Model compared with a traditional knowledge based approach.

RESEARCH DESIGN

Female volunteers (N=141) were recruited from the student population at Washington State University. who indicated an interest in attending six hours of "AIDS Education". Demographic information was collected on subjects and only subjects reporting two or more sexual partners in the previous 12 months were invited to participate in the study. Subjects who met the multiple partner criteria and were without scheduling conflicts were randomly assigned to one of three groups. The Treatment Group (N=30) received an intervention based on the Health Belief Model designed to challenge beliefs about personal vulnerability, to increase efficacy for condom use, to increase sexual negotiation skills, to reduce the number of sexual partners, and to increase percentage of condom use. The Alternate Treatment group (N=28) received an intervention based on a "traditional" HIV education model emphasizing knowledge about HIV infection and modes of transmission. A Waiting List Control group(N=24) received no treatment, but did complete the appropriate measures at post-test and follow-up. Groups were led by female graduate students trained to use specific lesson plans. Group leaders were blind to the hypotheses being tested and to the fact that the groups were different in content. Groups were balanced for length of treatment and mode of presentation. Both groups met for 1.5 hours per week during four consecutive weeks.

Dependent variables in this study included both reported beliefs and self-reports of behavior. Beliefs about AIDS were measured using Foster's AIDS Survey (Foster, 1988). This instrument measured beliefs about severity of AIDS, perceived vulnerability to AIDS, self-efficacy for condom use, perceived efficacy of condoms to protect against AIDS, perceived disadvantages of condom use, perceived benefits for not using condoms, and intent to use condoms. Attitudes toward condoms were evaluated using Brown's (1984) Attitude Toward Condoms Scale. It measures beliefs about condom safety, embarrassment about using condoms, physical comfort of condoms, sexual excitement level with condoms, interruption and convenience of condom use. Factors from both scales ere combined to create a measure of "perceived costs or disadvantages of condom use" and "perceived benefits or advantages of condom use". Sexual self-efficacy and sexual risk taking behavior were measured using two scales developed specifically for this study. Using the Burroughs Wellcome Sexually Transmitted Disease Risk Assessment Questionnaire (1989) as a base, risk factors were incorporated into seven scenarios involving various degrees of risk for HIV infection. Subjects selected one of four options identifying what they would do in that situation. Responses were scored on a scale of 1-4 corresponding to degree of self-efficacy (willingness to be in control of the situation). Sexual Risk Taking behavior was also measured using questions based on the Burroughs Wellcome instrument.

All dependent variables were measured three times during the study. The pre-test occurred at the time subjects volunteered for the study, the post-test took place during the last group session, and the follow-up data was collected 60 days after the end of the group.

RESULTS

The results of this study were equivocal in terms of demonstrating the efficacy of the Health Belief Model for promoting safer sex behavior in this population. While the Experimental Treatment group did show positive changes in beliefs and behaviors related to safer sex compared to the Control Group, these changes were not significantly different from similar changes seen in the Alternate Treatment Group. The Treatment Group did show significantly ($p<.10$) stronger beliefs in Benefits of Condom use at follow-up compared to the Waiting List Control Group (Table 1). Areas that did not show significant changes as a result of the experimental treatment included; Perceived Costs of Condom Use (Table 2), Perceived Efficacy for Condom Use (Table 3), Reported Percentage of Condom Use (Table 4), Intent to Use Condoms (Table 5), Frequency of Interviewing Partners (Table 6), Perceived Vulnerability to AIDS (Table 7) or Decreased Risk Taking (Table 8).

Perceived Monogamy as a Confounding Variable

The most significant finding of this study was seen in ex-post facto analyses of information obtained during the course of the Post Experimental Inquiry (PEI). Subjects were asked to complete a Post Experimental Inquiry questionnaire after the completion of the sixty day Follow-up to examine possible confounds due to hypothesis guessing, selective attrition from groups, diffusion of treatment or group leader differences. As part of the PEI, subjects were asked: "Are you now in a monogamous relationship, and if so, for how long have you been in this relationship?". The response to this question was very interesting and led to further statistical analyses yielding statistically significant results. Though all subjects reported multiple sexual partners during the 12 months immediately preceding the Pre-test, 66% of subjects reported being in "monogamous" relationships at follow-up. The most interesting part of this data was seen in the fact that the average number of months of reported monogamy exceeded the total length of the study, with the Experimental Treatment group reporting the longest average time in monogamous relationships (Table 9). This data would indicate that a large number of subjects were defining themselves as being "monogamous" at the same time that they were reporting having multiple partners. To examine the relationship of reported monogamy to the dependent variables in this study, further analyses was conducted comparing responses of subjects reporting "monogamy" at follow-up with those subjects not reporting monogamy at follow-up. This analysis showed three significant relationships that warrant mention. Pearson Product correlations were computed comparing months of monogamy with scores on the dependent

variables at follow-up to see if there was a relationship. Significant correlations were seen between reported months of monogamy and two of the dependent variables. A significant negative correlation was seen between reported months of monogamy and efficacy for condom use ($r=-.27$, $p<.05$). This would indicate that the longer subjects defined their relationships as monogamous, the less likely they were to have efficacy for condom use. A similar relationship was seen when correlating reported months of monogamy with perceived vulnerability. In this analysis, a significant inverse relationship was found between reported months of monogamy and perceived vulnerability to HIV ($r=-.28$, $p<.05$). This analysis would indicate that the longer individuals perceive themselves as being "monogamous", the less likely they are to see themselves as being at risk for HIV infection. A third analysis also yielded significant results. Analysis of Variance comparing monogamous and non-monogamous subjects at follow-up showed subjects defining themselves as monogamous to be significantly ($p<.001$) less likely to report intent to use condoms (Table 10). As is the case with the other two analyses, this would indicate that "perceived monogamy" may be a factor that is decreasing an individual's willingness to practice safer sex.

Table 1
Benefits of Condom Use by Group and Testing Period

Group	Pre	Follow-up	Mean
Treatment	77.10	85.52	*82.79
Alternate	74.40	77.50	77.03
Control	75.50	74.25	*75.08
			*(p<.10)

Table 2
Costs of Condom Use by Group and Testing Period

Group	Pre	Post	Follow-up
Treatment	121	130	130
Alternate	123	129	124
Control	122	119	119

Table 3
Efficacy for Condom Use by Group and Testing Period

Group	Pre	Post	Follow-up
Treatment	24.4	26.3	24.8
Alternate	24.1	25.6	24.8
Control	24.2	24.7	24.9

Table 4
Percentage of Condom Use by Group and Testing Period

Group	Pre-test	Follow-Up
Treatment	42.79	42.05
Alternate	50.71	48.12
Control	38.64	42.04

Table 5
Intent to Use Condoms by Group and Testing Period

Group	Pre	Post	Follow-Up
Treatment	21.5	24.6	22.5
Alternate	23.7	22.7	23.6
Control	21.8	20.0	17.9

Table 6
Frequency of Interviewing Partners by Group and Testing Period

Group	Pre-Test	Follow-up
Treatment	4.44	4.44
Alternate	4.04	4.60
Control	3.97	3.76

Table 7
Vulnerability to AIDS by Group and Testing Period

Group	Pre	Post-	Follow-up
Treatment	22.3	24.0	22.5
Alternate	21.0	22.2	21.9
Control	20.5	21.3	21.1

Table 8
Risk Reducation Test by Group and Testing Period

Group	Pre	Post	Follow-up
Treatment	23.8	25.9	26.1
Alternate	25.6	26.7	27.0
Control	24.3	23.6	24.9

Table 9
Means and Standard Deviations of Months of Reported Monogamy by Groups

Group	Months	S.D.
Treatment	16.89	20.72
Alternate	15.00	14.97
Control	9.70	14.67

Table 10
Mean Intent to Use Condoms at Follow-up by Monogamy Status

Group	n	Intent
Monogamous	51	19.82
Non-Monogamous	27	25.00
		(p<.001)

CONCLUSIONS

Though this study failed to demonstrate the efficacy of the Health Belief Model as a more effective strategy for increasing safer sex behavior compared with traditional knowledge based strategies, the study did produce some valuable insight into another factor that impacts individual's decisions to practice safer sex.

The issue of perceived monogamy proved to be a factor that warrants increased attention in HIV education. Traditional AIDS Education has always emphasized the fact that a true monogamous relationship is a "safe" relationship. Unfortunately, there is very little in the educational model that defines monogamy in operational terms. Though Kaplan (1987) defines monogamy as "only one partner for at least 10 years", this definition does not appear acceptable to a young sexually active population. Given this situation, many young people appear to be defining "monogamy" using their own definitions, as documented in this study's high percentage of subjects reporting multiple partners and "monogamy" simultaneously.

This cognitive strategy is understandable based on cognitive dissonance theory. When behavior and beliefs are incompatible, one must either change the behavior or change the belief. Since reported beliefs are easier to change than behavior, individuals are choosing to arbitrarily define their behavior as "monogamous" (even though it is high risk) as a way of reducing cognitive dissonance. Anecdotal data from the author's personal counseling experiences with this population show several common "monogamy" themes in this population.

1.) Students often define their relationships as "monogamous" based on their personal actions without considering the actions of their partner.
2.) Students do not define a "one night stand" as a break in monogamy, especially if either partner was impaired by alcohol.
3.) Students do not consider a "short break-up" as a break in monogamy, even if either partner had an opportunity for a sexual encounter with another person.
4.) Students define relationships as brief as two weeks as "monogamous". They do not see that serial monogamy is still technically "multiple partners".
The issue of what constitutes a monogamous relationship appears to be a critical element of AIDS education that has not been emphasized enough. It is apparent that young people are misinterpreting the definition of monogamy in a way that may actually be increasing their risk for HIV infection. This study found that sexually active college students are relying on the message that "monogamous relationships are safe safe". Unfortunately, their flexible definitions of "monogamy" actually increase the risk of HIV infection by reducing their efficacy for condom use and by decreasing their feelings about personal vulnerability to the AIDS virus.

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